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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/047,264	01/14/2002	Lynette Fouser	22058-532	4514

7590 01/29/2004

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EXAMINER	
JIANG, DONG	

ART UNIT	PAPER NUMBER
1646	

DATE MAILED: 01/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/047,264	FOUSER ET AL.	
	Examiner	Art Unit	
	Dong Jiang	1646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *9/18/03 & 10/17/03*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12-16,18 and 65-91* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12-16, 18, and 65-91* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892) 4/14/03
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 3/20/03
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *5/3/02*.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Applicant's election of Invention II, claims 12-16 and 18, directed to SEQ ID NO:3 and 4, filed on 18 September 2003 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Applicant's supplemental preliminary amendment filed on 17 October 2003 is acknowledged and entered. Following the amendment, claims 1-11, 17 and 19-64 are canceled, claims 12, 13 and 18 are amended, and the new claims 65-91 are added.

Currently, claims 12-16, 18, and 65-91 are pending and under consideration.

Applicants submission of IDS references listed on PTO-1449 filed on 10 May 2002, 20 March 2003, and 11 April 2003 is acknowledged. It is noted that the relevance of references C1 to C11, C13 and C19 cannot be assessed as the references are nucleic acid and/or amino acid sequences, and no indication of relevance or alignment to the disclosed sequences has been provided.

Formal Matters:

The specification is objected to for the following informalities, appropriate correction is required for each item:

At page 2, line 5, it is stated that "members of the CRF2 family are candidate *ligands* for the IL-10-like molecules", whereas members of the CRF2 family are *receptors* for those cytokines.

Objections and Rejections under 35 U.S.C. 112:

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 14, 15, 18, and 78-91 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14 is indefinite for the recitation of "operably linked to", which usually refers to polynucleotide. It is unclear what "operation" is intended here. Claim 88 is similarly indefinite.

Claim 15 is indefinite for "*an* immunoglobulin molecules". The claim is further indefinite because it is unclear what "or" in line 3 means within Markush group.

Claim 18 is indefinite for failing to adequately and specifically identify the polypeptide "CRF2-12", from which the subject matter of the current invention was derived. The claim merely defines the polypeptide by an arbitrary name, which may be used in the art to indicate different subject matters including polypeptide molecules having different sequence structures and/or functional properties. It is, therefore, necessary that the applicant clearly defines the term "CRF2-12" by sufficient identifying characteristics so as to clearly and distinctly indicate the polypeptide that is the subject of the invention.

Claim 78 is incomplete for omitting essential elements. The claim is limited by a hybridization method "at high stringency". The specification does not define such conditions. As the target sequence is specific, an artisan needs to know the specific corresponding hybridization conditions in order to practice the claimed invention. The claim recites neither hybridization conditions to ensure that any hybridized polynucleotides will comprise specific sequence within the meaning of the disclosure, nor process steps which would effect the removal of nonspecific hybridization complexes. Without knowing what conditions are comprised by "high stringency", one can not determine the metes and bounds of nucleic acids within the limitations of the claim.

The remaining claims are rejected for depending from an indefinite claim.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 12, 14-16, 65-71 and 76-91 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for claims limited in scope to a polypeptide of SEQ ID NO:4, functional variants with at least 90% identity thereto, a polypeptide encoded by SEQ ID NO:3, binding to IL-10 or IL-22 and antagonizing IL-22, or fragments thereof that retain

such an activity, does not reasonably provide enablement for claims to a variant at least 85% identical to SEQ ID NO:4 and having amino acids 67-98 of SEQ ID NO:4, a polypeptide encoded by all polynucleotides hybridizing at high stringency to the complement of SEQ ID NO:3, comprising amino acids 67-98 of SEQ ID NO:4, and binding IL-22. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

The factors considered when determining if the disclosure satisfies the enablement requirement and whether any necessary experimentation is "undue" include, but are not limited to: 1) nature of the invention, 2) state of the prior art, 3) relative skill of those in the art, 4) level of predictability in the art, 5) existence of working examples, 6) breadth of claims, 7) amount of direction or guidance by the inventor, and 8) quantity of experimentation needed to make or use the invention. *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

Claim 12 is directed to functional variants that are at least 85% identical to SEQ ID NO:4 and having amino acids 67-98 of SEQ ID NO:4. Enablement is not commensurate in scope with the claims to those variant polypeptides. The specification discloses the amino acid sequence of SEQ ID NO:4 and no % variants thereof meeting the limitations of these claims were ever identified or particularly described. Additionally, the specification provides no further information about the structural and functional relationship within the claimed sequence SEQ ID NO:4 as to which regions would be tolerant of modification and which would not regarding to retaining the functional activities of the polypeptides. Although the presence of amino acids 67-98 of SEQ ID NO:4 is required, it has not been indicated that this region is responsible for the activity of the polypeptide. In order to make a sequence variant, for instance, with the reasonable assurance that it would have the desirable property of the invention, such as binding IL-10 or IL-22, the artisan would need to know which regions of the disclosed molecule are responsible for the interaction underlying its biological function(s). The specification provides neither clear direction or enough guidance, nor working example to teach how to make a commensurate number of the claimed species. Therefore, in the absence of guidance, or working example, it is not reasonable to predict that a variant with 85% sequence identity to SEQ ID NO:4 and having amino acids 67-98 of SEQ ID NO:4 would retain the functional activity. As such, it would require undue experimentation to practice the invention in a manner commensurate in scope with the claims.

Claim 78, as written, encompasses a purified polypeptide encoded by *any or all* polynucleotide hybridizing at high stringency to the complement of SEQ ID NO:3, and comprising amino acids 67-98 of SEQ ID NO:4, which reads on any or all functional polypeptides so long as they share said 31 amino acids as the nucleotide sequence encoding those 32 amino acids would be sufficient to hybridize to the complement of SEQ ID NO:3 at high stringency. It is well known in the art that hybridization will occur even under stringent conditions if there is only local identity between two molecules whose sequences might be totally divergent outside of that region. Such hybridized molecules may encode proteins capable of binding IL-22, yet producing the opposite biological effect of SEQ ID NO:4, which antagonizing IL-22, or having other distinct biological functions from those of the SEQ ID NO:4. The specification provides no guidance as to a specific hybridization condition for obtaining the claimed species, or working examples of any such variants, which would be within the limitations of the claims. Therefore, it would require undue experimentation in order to make the claimed invention in its full scope.

Due to the large quantity of experimentation necessary to determine how to make the invention commensurate in scope with the claims, the lack of direction/guidance presented in the specification regarding same, the absence of working examples directed to same, the complex nature of the invention, the state of the prior art establishing that hybridization would occur between molecules share only local sequence homology, and the breadth of the claims which embrace a broad class of structural variants, undue experimentation would be required of the skilled artisan to make the claimed invention in its full scope.

Claim 78 and the dependent claims 79-91 are further rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Vas-Cath Inc. v. Mahurkar, 19USPQ2d 1111, clearly states that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention*. The invention is, for purposes of the 'written description' inquiry, *whatever is now claimed.*" (See page 1117.) The specification does not "clearly allow persons of

ordinary skill in the art to recognize that [he or she] invented what is claimed." (See *Vas-Cath* at page 1116).

The specification discloses *one* polypeptide with sequence and functional particularity, and no other hybridization variants thereof meeting the limitations of the claim were ever identified or particularly described. The present claim 78 encompasses significant structural dissimilarity as compared to the specified polypeptide. Although the specification provides a correlation between the full length structure and function, it does not detail any substructures from the full length that retain the function. The inclusion of 32 amino acid residues does not provide adequate structure since these 32 amino acids have not been correlated with the desired function of the polypeptide. The Office therefore concludes that a single species of the protein is not representative of all variants recited in the claim, and thus that the disclosure does not convey to those skilled in the art that the inventors were in possession of the genera of variants encoded by a polynucleotide hybridizing at high stringency to the complement of SEQ ID NO:3, comprising amino acids 67-98 of SEQ ID NO:4, and binding IL-10 or IL-22, at the time the application was filed.

Rejections Over Prior Art:

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 12-16, 18, and 65-70, 72-86, and 88-91 are rejected under 35 U.S.C. 102(e) as being anticipated by Agarwal et al., US 2003/0219862 A1.

Agarwal teaches a polypeptide, SEQ ID NO:42, which amino acid sequence is 100% identical to SEQ ID NO:4 of the present invention (see appended computer printout of sequence search results). As such, the referenced sequence anticipates claims 12, 13, 65-70, and 72-86 (note: the present SEQ ID NO:13, 14, and 16-19 are fragments of SEQ ID NO:4). Although Agarwal does not mention explicitly that said polypeptide binds IL-10 or IL-22 as recited in the

present claims 12 and 78, it would be an inherent property as Agarwal's polypeptide is the same as that of the present invention. Additionally, Agarwal teaches a fusion protein comprising said polypeptide and Fc region of an immunoglobulin (page 7, [0074], and page 10, [0118]), and therefore, anticipates the present claims 14, 15, and 88-90. Further, Agarwal teaches a composition comprising said polypeptide and a carrier (page 6, lines [0070], especially lines 12-15 of the right column). Although the reference does not mention explicitly that the carrier is a pharmaceutically acceptable carrier, it teaches that the composition is preferably administered parenterally such as subcutaneous, intravenous or intradermal injection, indicating that the composition is a pharmaceutical composition. As such, the reference also anticipates claims 16 and 91. Furthermore, Agarwal teaches a kit comprising said polypeptide (page 5, [0058] and [0061]), and thus anticipates claim 18.

Conclusion:

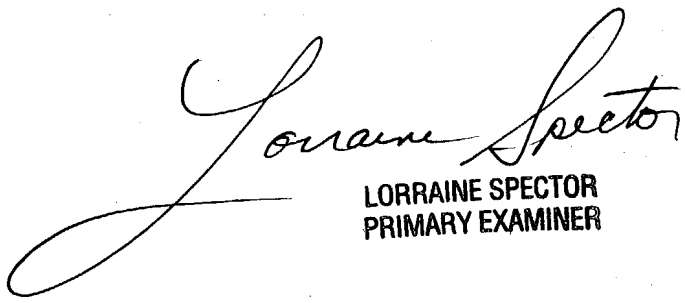
No claim is allowed.

Advisory Information:

Any inquiry concerning this communication should be directed to Dong Jiang whose telephone number is 703-305-1345. The examiner can normally be reached on Monday - Friday from 9:30 AM to 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne Eyler, can be reached on (703) 308-6564. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.



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1/16/04